

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A system for communicating medical information, comprising:
a medical device installed with a version of software; and
a software agent communicatively coupled to the medical device for interacting with the medical device, wherein the software agent interacts with the medical device irrespective of the version of software installed on the medical device.
2. The system of Claim 1, wherein the medical device stores medical information.
3. The system of Claim 2, wherein the software agent interacts with the medical device by getting the medical information from the medical device.
4. The system of Claim 2, wherein the software agent interacts with the medical device by setting the medical information of the medical device.
5. The system of Claim 2, wherein the software agent interacts with the medical device by retrieving the medical information from the medical device.
6. The system of Claim 2, wherein the software agent interacts with the medical device by configuring the medical device.
7. The system of Claim 1, further comprising another software agent communicatively coupled to the software agent.
8. The system of Claim 2, further comprising another medical device installed with another version of software, the software agent being communicatively coupled to the another medical device without regard to the another version of software installed on the another medical device, and wherein the another medical device retrieves from the software agent the medical information that the software agent retrieves from the medical device.

9. The system of Claim 1, further comprising an output device communicatively coupled to the software agent.

10. The system of Claim 9, wherein the output device is selected from a group consisting of a printer, a waveform display, a video recorder, a debugging machine, a data card, a cell phone, a therapeutic device trainer, a modem, an ECG monitor, a personal computer, an alarm system, a voice storage system, a personal digital assistant, a service test system, and a manufacturing test system.

11. The system of Claim 10, wherein the output device is communicatively coupled to the software agent via a wired local area network.

12. The system of Claim 10, wherein the output device is communicatively coupled to the software agent via a wireless local area network.

13. The system of Claim 1, further comprising a data management system communicatively coupled to the software agent.

14. A system for communicating medical information, comprising:
a therapeutic device for storing data and being installed with a version of software;

a software agent to present a user interface to communicate with the therapeutic device; and

an interface for communicatively coupling the therapeutic device to the software agent irrespective of the version of software of the therapeutic device, the interface having a therapeutic portion that exposes data from the therapeutic device and a software agent portion that obtains the data so that the user interface is invoked upon receiving the data.

15. The system of Claim 14, wherein the software agent includes a set of presentation tools that invoke the user interface.

16. The system of Claim 15, wherein the therapeutic device includes a directory, the directory including a number of constructor objects and a number of

activator objects, each constructor object being controllable from the set of presentation tools to query the therapeutic device for the data, and each activator object being controllable from the set of presentation tools to configure the therapeutic device.

17. The system of Claim 16, wherein each object in the directory has a well-known name so that the software agent may use the well-known name of the object to invoke the object in the directory.

18. The system of Claim 14, wherein the data obtained by the agent portion of the interface is structured in a language that contains the data and that describes the data using a number of textual tags.

19. The system of Claim 14, further comprising another software agent communicatively coupled to the software agent, the another software agent getting the data obtained by the software agent from the therapeutic device.

20. The system of Claim 14, further comprising another therapeutic device communicatively coupled to the software agent, the another therapeutic device being reconfigurable by the software agent based on the data obtained from the therapeutic device by the software agent.

21. The system of Claim 14, further comprising an output device communicatively coupled to the software agent.

22. The system of Claim 21, wherein the output device is selected from a group consisting of a printer, a waveform display, a video recorder, a debugging machine, a data card, a cell phone, a therapeutic device trainer, a modem, an ECG monitor, a personal computer, an alarm system, a voice storage system, a personal digital assistant, a service test system, and a manufacturing test system.

23. The system of Claim 22, wherein the output device is communicatively coupled to the software agent via a wired local area network.

24. The system of Claim 22, wherein the output device is communicatively coupled to the software agent via a wireless local area network.

25. The system of Claim 14, further comprising a data management system communicatively coupled to the software agent.

26. A system for remotely communicating with a medical device, comprising:
a defibrillator for storing data and being installed with a version of software; and
a personal digital assistant being operative to communicate with the defibrillator to access the data irrespective of the software version of the defibrillator.

27. The system of Claim 26, wherein the personal digital assistant communicates with the defibrillator by getting data from the defibrillator.

28. The system of Claim 26, wherein the personal digital assistant communicates with the defibrillator by setting data in the defibrillator.

29. The system of Claim 26, wherein the personal digital assistant communicates with the defibrillator by retrieving data from the defibrillator.

30. The system of Claim 26, wherein the personal digital assistant communicates with the defibrillator by configuring the data in the defibrillator.

31. The system of Claim 26, further comprising another defibrillator installed with a software agent, the another defibrillator being communicatively coupled to the defibrillator via the software agent without regard to the version of software installed on the defibrillator, and wherein the another defibrillator retrieves from the defibrillator the medical information that is stored in the defibrillator.

32. The system of Claim 26, wherein the defibrillator includes an interface that exposes a directory of objects, a number of objects referencing data relating to the configuration of the defibrillator, and a number of other objects referencing data relating to one or more patients treated by the defibrillator.

33. The system of Claim 32, wherein each object in the directory is selected from a group consisting of an inbox, an outbox, device data, patient data, and a root directory.

34. The system of Claim 32, wherein the software agent includes an interface allowing the receipt of the data structured in a language that contains the data and that describes the data through textual tags.

35. The system of Claim 34, wherein the language includes Extensible Markup Language (XML), wherein data is structured as an XML element.

36. A medical device, comprising:

hardware to apply a therapy to a patient according to a set of therapeutic rules;
one or more data storage devices for storing configuration data and patient data;
and

a common interface for exporting either the configuration data or the patient data, both the configuration data and the patient data being organized in one or more subdirectories of a directory.

37. The medical device of Claim 36, wherein both the configuration data and the patient data are structured as objects in one or more subdirectories, wherein each object is formed in a language that contains both the configuration data and the patient data and that describes both the configuration data and the patient data using textual tags when the object is exported external to the medical device.

38. The medical device of Claim 37, wherein a number of objects in one or more subdirectories are defined as constructors, wherein a number of other objects in one or more subdirectories are defined as activators, the constructor being invocable external to the medical device to query an object, the activator being invocable external to the medical device to change an object.

39. The medical device of Claim 36, further comprising a piece of communication software that contains wired communication protocols and another piece of communication software that contains wireless communication protocols, the device session manager selectively interacting with one of the two pieces of communication software to communicate external to the medical device.

40. The medical device of Claim 39, further comprising a device session manager for coordinating the interaction among the number of therapeutic rules, the configuration data, patient data, and one of the two pieces of communication software.

41. The medical device of Claim 39, wherein the wired communication protocols include File Transfer Protocol (FTP), Transmission Control Protocol (TCP), Internet Protocol (IP), Lightweight Directory Access Protocol (LDAP), Simple Object Access Protocol (SOAP), Common Object Request Broker Architecture (CORBA) protocol, RS-232-C protocol, HyperLAN, and IEEE 802.x protocols, and wherein the wireless communication protocols include Object Exchange (OBEX) protocol, Infrared Data Association (IrDA) protocols, and Bluetooth protocols.

42. A terminal for communicating with a medical device that stores data, the medical device being installed with a version of software, the terminal comprising:

a data storage device for storing a set of presentation tools;

a user interface being invocable by a presentation tool; and

an interface for importing data stored in the medical device and for allowing the user interface to configure the medical device irrespective of the version of software of the medical device.

43. The terminal of Claim 42, wherein the data to configure the medical device is structured in a language that contains the data and that describes the data through textual tags.

44. The terminal of Claim 43, wherein the language includes Extensible Markup Language (XML), wherein the data is structured as an XML element, and wherein upon receiving the data as an XML element, the set of presentation tools are invoked to present the user interface.

45. The terminal of Claim 44, wherein the terminal includes a set of agent rules to determine which presentation tool is invoked when the XML element is received by the terminal.

46. The terminal of Claim 45, further comprising a device session manager for coordinating the interaction among the set of presentation tools, the user interface, the interface, and the set of agent rules.

47. The terminal of Claim 46, further comprising a piece of communication software that contains wired communication protocols and another piece of communication software that contains wireless communication protocols, the device session manager selectively interacting with one of the two pieces of communication software to communicate external to the terminal.

48. The terminal of Claim 47, wherein the wired communication protocols include File Transfer Protocol (FTP), Transmission Control Protocol (TCP), Internet Protocol (IP), RS-232-C protocol, and IEEE 802.x protocols, and wherein the wireless communication protocols include Object Exchange (OBEX) protocol and Infrared Data Association (IrDA) protocols.

49. A method for communicating between a medical device and a terminal, comprising:

establishing a communication session between the medical device and the terminal by selecting a wired communication protocol or a wireless communication protocol;

exposing a directory of objects on the medical device so that each object can be accessed by the terminal, each object referencing data relating to the medical device; and

presenting a user interface component to configure the medical device when data is imported into the terminal, the data being structured in a language that contains the data and that describes the data.

50. The method of Claim 49, wherein the act of exposing a directory of objects includes exposing objects that have well-known names so that each object can be accessed by the terminal using the well-known name of the object.

51. The method of Claim 50, wherein the directory of objects includes activator objects, each activator object being controllable by the user interface component to configure the medical device.

52. The method of Claim 50, wherein the directory of objects includes constructor objects, each constructor object being controllable by the user interface component to query the medical device for a piece of data.

53. The method of Claim 49, wherein the method does not proceed in the order presented.

54. A medical device, comprising:
hardware to apply a therapy to a patient according to a set of therapeutic rules;
one or more data storage devices for storing configuration data and patient data;
and

a processor for exposing a directory of objects having well-known names that may be used to invoke the objects external to the medical device, a set of objects being invokable to retrieve configuration data or the patient data, and another set of objects being invokable to change the configuration data so that the therapy to be applied to the patient is changed.

55. The medical device of Claim 54, wherein each well-known name includes one or more letters.

56. The medical device of Claim 54, wherein each well-known name includes one or more numbers.

57. The medical device of Claim 54, wherein each well-known name includes one or more symbols.

58. The medical device of Claim 54, wherein each well-known name is composed from a combination of letters, numbers, and symbols.